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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/775,216

02/11/2004

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040057

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23850 7590 02/12/2008
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EXAMINER

AMRANY, ADI

ART UNIT

PAPER NUMBER

2836

MAIL DATE

DELIVERY MODE

02/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/775,216	Applicant(s) OKADA ET AL.	
	Examiner ADI AMRANY	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/14/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicants' arguments filed January 14, 2008 have been fully considered but they are not persuasive. Regarding argument (1) (Remarks, page 11), the non-exclusive example provided by applicants still allows for a YES/HIGH output when only one condition is met (my rent went down, I did not get a raise, but I will still go on vacation). This argument is made moot by the claim amendments which require "simultaneous shutdown" in more than one power source circuit.

Regarding argument (2) (page 12), rectifiers are well known in the art, and can be easily added to parallel AC power source circuits, as is shown by the Takahashi reference.

Regarding argument (3) (page 13), the limitation of "simultaneous shut down" is not met by Tominaga. This limitation, however, is met by the Prager and D'Atre references.

Applicants' argument (4) (page 13) is unclear. There are no recitations regarding "an optimum oscillating frequency" or "beat noise" in any of the pending claims. Tominaga discloses that the power source circuit frequencies are synchronized to control the output voltages of the power source circuits. It is unclear how the Tominaga system is inefficient. Applicants' remarks even show that Tominaga optimizes efficiency and suppresses noise; "nullify any deviation of synchronization error among the inverters or any difference in phase among the output voltages" (page 13, lines 7-9).

Lastly, applicants have not responded to or rebutted the interpretations of "a terminal" (non-final rejection, page 2). The use of "a terminal" for the input of an abnormality signal (claim 1, line 10) does not require that this terminal be the same as the terminal for outputting an abnormality signal ("a terminal"; line 8).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 33 and 35-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The amended limitations (last 4 lines of each claim) state that the own power source circuit and the other power source circuits are shut down, yet the master and slaves continue to synchronously oscillate. The claim is indefinite because it does not indicate how the master and slaves can operate after they are turned off. For the purpose of the art rejections of these claims, the limitation will be interpreted as not requiring oscillation if the power source circuit is shut down.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 29-34, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tominaga (US 5,237,208) in view of Takahashi (US 5,768,117) and Prager (US 5,875,104).

With respect to claim 29, Tominaga discloses a multiple output power source apparatus (fig 1) comprising a plurality of power source circuits (items 1, 2, and 3, and col. 5, lines 4-9), each circuit being equipped with an independent output control circuit (fig 2, and col. 5, lines 22-26), wherein each of the output control circuits comprise:

a shutdown circuit (fig 2, items 34, 38; col. 6, lines 9-22 and 48-52) that detects an abnormality of the own power source circuit to output an abnormality signal to control circuits of one or a plurality of other power source circuits via a first terminal (item 20) and inputting an abnormality signal via a first terminal (20) to shut down the own power source circuit when an abnormality is detected in the own power source circuit;

each of the output control circuits being operably coupled to each other (fig 1, items 6-7, 17 and 20).

Tominaga does not expressly disclose:

A. the power source circuits generate a DC voltage;

B. the own power source circuit and the other power source circuits

simultaneously shut down when an abnormality is detected either in the own power source circuit or in the other power source circuits.

A. Takahashi discloses a multiple output power source apparatus (fig 1; col. 4, 7) comprising a plurality of power source circuits (con1-con4) individually generating a

plurality of DC voltages (col. 7, lines 6-11). Takahashi also discloses that AC/DC converters may be placed at an input bus (fig 15).

Tominaga and Takahashi are analogous because they are from the same field of endeavor, namely redundant power supplies. At the time of the invention by applicants, it would have been obvious to one skilled in the art to combine the Tominaga power source circuit with the Takahashi rectifier in order to supply power to a DC load.

B. Prager discloses a multiple output power source apparatus (fig 1, 12a-b; col. 3-4, 10-11) comprising a plurality of power source circuits (items 101-103) comprising a shutdown circuit (connection to PCN, PRN) whereby the own power source circuit and the other power source circuits simultaneously shut down when an abnormality is detected either in the own power source circuit or in the other power source circuits (col. 11, lines 29-57).

Takahashi also discloses that the power source circuits can be configured such that only one circuit is allowed to fail (col. 12, lines 7-18). Takahashi, however, does not expressly state the outcome of exceeding the allowance failure number. Tominaga, Takahashi and Prager are analogous because they are from the same field of endeavor, namely redundant power supplies. At the time of the invention by applicants, it would have been obvious to one skilled in the art to combine the Tominaga and Takahashi power source circuits with the simultaneous shut down disclosed in Prager in order to protect the load from the detected abnormality.

With respect to claim 30, Tominaga discloses a converter (item 26) that is driven by a switching circuit (item 31), converts an input voltage into a prescribed output voltage.

With respect to claim 31, Tominaga discloses the output stabilizing circuit (col. 5, lines 50-62; col. 6, lines 23-30) comprises:

a reference voltage generating circuit (item 31); an output voltage monitoring circuit (item 32); an oscillator (item 29); and a driving circuit (item 30) that controls the clock signal; and

the shutdown circuit comprises an abnormality detecting circuit (items 34, 38) that is connected to a first terminal of the other power source circuits (col. 5, lines 22-26), outputs an abnormality signal when an abnormality is detected (col. 6, lines 9-13), inputs an abnormality signal (col. 6, lines 14-22), and stops oscillation when an abnormality is detected (col. 7, lines 6-29).

With respect to claim 32, Tominaga discloses an oscillator in the master circuit is connected to an output circuit of a slave circuit via a second terminal, and outputs a synchronous oscillation signal (col. 7, lines 33-42), and an oscillator in an output circuit of the slave is connected to the output circuit of the master via a third terminal, and inputs the synchronous oscillation signal from the master to perform synchronous control (col. 7, lines 43-55). Tominaga does not expressly disclose the process of selecting a master or the slave. Prager discloses one of the plurality of power source circuits is set as a master and one or the plurality of power source circuits except the master is set as a slave (col. 5, lines 48-59).

With respect to claim 33, Tominaga, Takahashi and Prager disclose the DC output, the shutdown circuit, the master/slave synchronizing as discussed above in the rejections of claims 29 and 32.

With respect to claim 34, Tominaga discloses a converter and switching circuit (items 26, 31) and the master/slave switching signal synchronization (col. 7, lines 33-55), as discussed above in the rejection of claims 30 and 32, respectively.

With respect to claim 36, Tominaga, Takahashi and Prager disclose a converter and switching circuit (claim 30), master/slave synchronizing (claim 32), the master circuit comprises an first oscillator, a stabilizing circuit and a shutdown circuit (claim 31), and the slave circuit comprising a second oscillator, stabilizing circuit, and shutdown circuit (claim 31), as discussed above.

With respect to claim 38, Tominaga discloses outputting the abnormality signal when a prescribed voltage is superposed on the synchronous line (col. 8, lines 5-34).

6. Claims 29-32, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tominaga in view of Takahashi, Prager and Luo (US 1005/0073783).

With respect to claims 29-32, Tominaga, Takahashi and Prager disclose the recited limitations, as discussed above. Luo discloses a multiple output power source apparatus (fig 1; par 32) comprising a plurality of power source circuits (items 10N), wherein the abnormality signal is output and input via a first terminal (connection between circuit 10 and communication line 23).

Tominaga, Takahashi, Prager and Luo are analogous because they are from the same field of endeavor, namely parallel power systems. At the time of the invention by

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applicants, it would have been obvious to one skilled in the art to combine the power source apparatus disclosed in Tominaga, Takahashi and Prager with the abnormality communication line disclosed in Luo in order to monitor the status of the other power source circuits.

With respect to claim 35, Tominaga, Takahashi and Prager disclose the converter and switching circuit (items 26, 31; claim 30), a stabilizing circuit (item 30; claim 31), a shutdown circuit (item 38; col. 6, lines 1-22), and master/slave output control circuit synchronization (col. 7, lines 33-55; claim 32). The references do not expressly disclose that the master outputs the abnormality signal by stopping the synchronous oscillation signal.

Luo discloses a multiple output power source apparatus (fig 1; par 32) comprising a plurality of power source circuits (items 10N), a stabilizing circuit (fig 1, item 22; figure 3b; pars 35, 38), wherein the master outputs an abnormality signal by stopping the synchronous signal (par 92, lines 5-8).

With respect to claim 37, Tominaga discloses the shutdown circuits measure time during detection of an abnormality signal and cause the power circuit to be shut down when the measured time is a prescribed time or longer (fig 3, item 58; fig 5, item 74; col. 7, lines 23-29; col. 8, lines 29-34). Tominaga does not expressly disclose the master and slave circuits output the abnormality signal when the synchronous line is grounded. Luo discloses the abnormality signal is transmitted when the synchronous line is grounded, as discussed above in the rejection of claim 35.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the enclosed list of references.
8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADI AMRANY whose telephone number is (571)272-0415. The examiner can normally be reached on Mon-Thurs, from 10am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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